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Volume V
Part 31

INTEGRATED INFORMATION SUPPORT SYSTEM (IISS)
Volume V - Common Data Model Subsystem
Part 31 - File Utilities Product Specification

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This document establishes the design of the "File Utilities Function", one of the major functions of the Configuration Item "Precompiler" to be built and formally accepted by the ICAM program office.

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Part 31 - File Utilities Product Specification

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FOREWORD

This technical report covers work performed under Air Force Contract F33600-87-C-0464, DAPro Project. This contract is sponsored by the Manufacturing Technology Directorate, Air Force Systems Command, Wright-Patterson Air Force Base, Ohio. It was administered under the technical direction of Mr. Bruce A. Rasmussen, Branch Chief, Integration Technology Division, Manufacturing Technology Directorate, through Mr. David L. Judson, Project Manager. The Prime Contractor was Integration Technology Services, Software Programs Division, of the Control Data Corporation, Dayton, Ohio, under the direction of Mr. W. A. Osborne. The DAPro Project Manager for Control Data Corporation was Mr. Jimmy P. Maxwell.

The DAPro project was created to continue the development, test, and demonstration of the Integrated Information Support System (IISS). The IISS technology work comprises enhancements to IISS software and the establishment and operation of IISS test bed hardware and communications for developers and users.

The following list names the Control Data Corporation subcontractors and their contributing activities:

SUBCONTRACTOR	ROLE
Control Data Corporation	Responsible for the overall Common Data Model design development and implementation, IISS integration and test, and technology transfer of IISS.
D. Appleton Company	Responsible for providing software information services for the Common Data Model and IDEF1X integration methodology.
ONTEK	Responsible for defining and testing a representative integrated system base in Artificial Intelligence techniques to establish fitness for use.
Simpact Corporation	Responsible for Communication development.
Structural Dynamics Research Corporation	Responsible for User Interfaces, Virtual Terminal Interface,and Network Transaction Manager design, development, implementation, and support.
Arizona State University	Responsible for test bed operations and support.

SECTION 1

SCOPE

1.1 Identification

This specification establishes the design of the "File Utilities Function", one of the major functions of the Configuration Item "Precompiler" to be built and formally accepted by the ICAM Program Office. This CI constitutes one of the subsystems of the Common Data Model Processor (CDMP).

1.2 Functional Summary

The purpose of this Computer Program Configuration Item (CPCI) is to provide file handling capabilities to modules of the CDMP for file create, open, naming, close, delete, send and receive.

The following functions will be performed by the file utilities CPCI by these modules:

1. The module CDDV1 will open, close and delete a file when called.

2. The module CDF01 will provide a unique name for a file when given a host name. These files are used as temporary results files from query processors, aggregators, and conceptual to external transformers.

3. The module CDRF1 will provide a receive file function when given a file by the file send function (CDSF1). It receives file characteristics and instructions and returns file completion information.

4. The module CDSF1 provides a file send function. This function transfers files from host to host by receiving file characteristics and operating instructions. This module passes control to the file receive function (CDRF1).

SECTION 2

DOCUMENTS

2.1 Reference Documents

1. ICAM Documentation Standards: IDS15012000A, 28 December 1981.

2. D. Appleton Co., CDM Administrators Manual: UM620141000, March 1984.

3. D. Appleton, Co., CDM1-IDEF, Model of the Common Data Model; CCS620141000, 15 May 1985.

4. D. Appleton Co., Computer Program Development Specification (DS) for ICAM Integrated Support System (IISS) Configuration Item: NDML Precompiler; DS620141200, October 1984.

5. D. Appleton Co., Embedded NDML Programmer's Reference Manual: PRM620141200, March 1985.

6. Softech, Inc., NTM Programmer's Guide: UM620140001, July 1984.

7. Control Data Corporation, Computer Development Specification (DS) for ICAM Integrated Support System (IISS) Configuration Item: NDDL Command Processor: DS620141100, June 1985.

2.2 Terms and Abbreviations

Attribute Use Class: (AUC)

Conceptual Schema: (CS)

Common Data Model Processor: (CDMP)

Common Data Model: (CDM) Describes common data application process formats, form definitions, etc, of the IISS and includes conceptual schema, external, internal schemas, and schema transformation operators.

Data Field: (DF) An element of data in the external schema. It is by this name that an NDML programmer references data.

Database Management System: (DBMS)

Distributed Request Supervisor: (DRS) This IISS CDM subsystem configuration item controls the execution of distributed NDML queries and non distributed updates.

Virtual Terminal Interface: (VTI) Performs the interfacing between different terminals and the UI. This is done by defining a specific set of terminal features and protocols which must be supported by UI software which constitutes the Virtual Terminal Definition. Specific terminals are then mapped against the Virtual Terminal software by specific software modules written for each type of real terminal supported.

SECTION 3

REQUIREMENTS

3.1 Structural Description

The graphic portrayal of this CPCI is included in Section 3.10. This chart shows the hierarchial relationship of each module making up this CPCI.

1. CDDV1 (OPEN, CLOSE, DELETE function) modules

2. CDF01 (FILE NAMER function) modules

   These modules have no subordinate.

3. CDRF1 (FILE RECEIVE FUNCTION) modules

   Receive routine for file receive utility.
   Generalized interface to the file name queue server.
   File open routine for file receive utility (OPNFIL).
   Closes files for the file receive utility (CLSFIL).

4. CDSF1 (FILE SEND FUNCTION) modules

   Reads the files for file send utility (INPFIL).
   Open file "Filenam" for file send utility (OPNFIL).
   Close files for file send utility (CLSFIL).

3.2 Functional Flow

This CPCI implementes the logic defined in the Development Specification for this CPCI. Details of inputs/outputs and relationships between modules are found in Section 3.10.

This CPCI has been designated to operate in a batch or interactive mode. It must operate in the system environment established for IISS; that is, the Network Transaction Manager, the commmunications and the CDMP. Currently, on the module CDF01 (File Namer) has a VAX dependency. This is due to the module creating only VAX file names.

3.3 Interfaces

The diagrams in Section 3.3.1 depict the interface of File Utilities with other CPCI's.

A requesting process sends a File Transfer message to the File Send at the host where the original file to be transmitted resides. The File Send then sends an initiation message to the File Receive at the host where the file is to be created. After receiving acknowledgement from File Receive the File Send reads the source file and creates messages containing the file data. It transmits these messages to the File Receive where they are reconstructed into a new file. When the file transfer is completed, File Send notifies the requesting process.

3.4 Program Interrupts

Not applicable to this CPCI.

3.5 Timing and Sequencing Description

This CPCI is activated for each file called for by any module or subsystem under the common data model processor (CDMP). The modules under this CPCI are activated individually by the requesting processes.

3.6 Special Control Features

Not applicable to this CPCI.

3.7 Storage Allocation

3.7.1 Database Definition

Not applicable to this CPCI.

3.7.1.1 File Description

No permanent files have been defined for this CPCI. It may use temporary scratch files for such things as temporary query results.

3.7.1.2 Table Description

All tables used by this CPCI have been defined by the Development Specification for this CPCI.

3.7.1.3 Item Description

Not applicable to this CPCI.

DOCGROUP PS41330 Where-include-file-used List

Include File	Module Name
ERRCDM	
	CDDV1
	CDFSU
	CDINGSP
	CDM01
	CDORCSP
	CDRF1
	CDRSMN
	CDSF1
	CDSLMN
	DELFIL
	FILXFR
	GENFIL
ERRFS	
	CDDV1
	CDRF1
	CDSF1
	DELFIL
CHKCDM	
	CDDV1
	CDFSU
	CDRF1
	CDSF1
	DELFIL
	FILXFR
SRVRET	
	CDDV1
	CDFSU
	CDRF1
	CDSF1
	DELFIL

DOCGROUP PS41330 Where-external-routine-used List

System Module	Module Name
OPNFIL	
	CDDV1
	CDRF1
	CDSF1
	DELFIL
CLSFIL	
	CDDV1
	CDRF1
	CDSF1
	DELFIL
ERRPRO	
	CDDV1
	CDFSU
	CDINGSP
	CDM01
	CDORCSP
	CDRF1
	CDRSMN
	CDSF1
	CDSLMN
	DELFIL
	FILXFR
	GENFIL
INITAL	
	CDDV1
	CDRF1
	CDSF1
RCV	
	CDDV1
	CDRF1
	CDSF1

DOCGROUP PS41330 Where-external-routine-used List

System Module	Module Name
SQLAD1	
	CDM01
SQLFCH	
	CDM01
SQLCLS	
	CDINGSP
	CDM01
SQLTFL	
	CDM01
SQLOPN	
	CDINGSP
	CDM01
SQLAB1	
	CDM01
SQLWNR	
	CDM01
SIGERR	
	CDRF1
	CDSF1
NSEND	
	CDRF1
	CDSF1
	DELFIL
OUTFIL	
	CDRF1
NAMFIL	
	CDRF1
CDFUNC	
	CDSF1
	DELFIL
	FILXFR

DOCGROUP PS41330 Main Program Parts List

Main Pgm Name	Module Name	Module Type
CDDV1		
	OPNFIL	External routine
	CLSFIL	External routine
	ERRPRO	External routine
	INITAL	External routine
	RCV	External routine
	TRMNAT	External routine
CDFSU		
	ERRPRO	External routine
	TRMNAT	External routine
	FILXFR	Well-defined module
	INITEX	External routine
CDINGSP		
	ERRPRO	External routine
	SQLSCA	External routine
	SQLSCH	External routine
	SQLSCC	External routine
	SQLOSQ	External routine
	SQLEXE	External routine
	SQLCLS	External routine
	SQLOPN	External routine
	STRFILL	External routine
	STRNCPY	External routine
	SPRINTF	External routine
	STRCPY	External routine
	SQLBS2	External routine
	SQLFCC	External routine
CDM01		
	ERRPRO	External routine
	SQLSCA	External routine
	SQLBS1	External routine

DOCGROUP PS41330 Main Program Parts List

Main Pgm Name	Module Name	Module Type
	SIGERR	External routine
	NSEND	External routine
	OUTFIL	External routine
	NAMFIL	External routine
CDRSMN		
	ERRPRO	External routine
	CDM01	External routine
CDSF1		
	OPNFIL	External routine
	CLSFIL	External routine
	ERRPRO	External routine
	INITAL	External routine
	RCV	External routine
	TRMNAT	External routine
	SIGERR	External routine
	NSEND	External routine
	CDFUNC	External routine
	ISEND	External routine
	INPFIL	External routine
CDSLMN		
	ERRPRO	External routine
	CDM01	External routine
DELFIL		
	OPNFIL	External routine
	CLSFIL	External routine
	ERRPRO	External routine
	NSEND	External routine
	CDFUNC	External routine
	WHTHST	External routine
FILXFR		
	ERRPRO	External routine

[A

SUBDIRECTORY:	Sub-directory of that subsystem in which this file resides.
DOCUMENTATION GROUP:	Name of documentation group of which this source file is a member.
DESCRIPTION:	A description of the module as otained from the source code.
ARGUMENTS:	The arguments with which this routine is called if it is a Subroutine or a Function.
INCLUDE FILES:	A list of all the files that are included into this module as well as their purposes.
ROUTINES CALLED:	Subroutines or Functions, either documented or external, called by this module, if any.
CALLED DIRECTLY BY:	The documented routines which call this module, if any.
USED IN MAIN PROGRAM(S):	The documented Main Programs which contain this module in their parts list according to the list in section 3.10.3.

The Module Documentation is arranged alphabetically according to Module Name.

DOCGROUP PS41330 Module Documentation

NAME: CDDV1
PURPOSE: OPENS, CLOSES AND DELETES FILES
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDDV1
SOURCE FILE TYPE: COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY: CDMR

DESCRIPTION:

THIS IS A MAIN PROGRAM WHICH CALLS A
FORTRAN 77 SUBROUTINE TO OPEN AND CLOSE
A FILE BY THE GIVEN NAME AND DELETE IT. THIS IS THE MOST
MACHINE INDEPENDENT METHOD FOR DELETING FILES FOUND.

mod for rel 2.0: standard error handling,
pic 9(5) comp message data length parm.
also, do not need to send a reply back,
MODIFICATION 9/85: FILENAMES HAVE BEEN INCREASED FROM
30 TO 80 CHARACTERS TO SUPPORT ADDITION OF FILE
I/O PRIMITIVES.
FCB VARIABLE HAS BEEN ADDED AS THE ADDRESS OF THE
FILENAME
DISPOSITION VARIABLE HAS BEEN REDUCED FROM 6 TO 1
CHARACTER FOR FIOP ADDITION
CALLS TO OPNFIL AND CLSFIL HAVE BEEN
SUBSTITUTED FOR CALL TO FDELET
THIS PROGRAM IS USED TO DELETE A FILE. FIRST THE
FILE MUST BE OPENED, THEN IT CAN BE CLOSED WITH A
DISPOSITION OF DELETE. THE TARGET FILE HAS BEEN
PASSED TO THIS ROUTINE THROUGH A CALL TO "RCV"

INCLUDE FILES:

ERRCDM
ERRFS
CHKCDM
SRVRET
STDRESP
ERRPRO

ROUTINES CALLED:

OPNFIL
CLSFIL
ERRPRO
INITAL
RCV
TRMNAT

DOCGROUP PS41330 Module Documentation

NAME: CDFSU
PURPOSE: PROGRAM NAME FILE SEND UTILITY UNIT TEST
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDFSU
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: CDMR

DESCRIPTION:

- THIS ROUTINE WILL TEST FILE SEND AND
RECEIVE UTILITIES, WHICH IN TURN USE
FILE NAMER AND FILE DELETER UTILITIES.

MODIFICATION 9/86: FILNAME HAS BEEN INCREASED FROM
30 TO 80 CHARACTERS TO SUPPORT
INSTALLATION OF FILE I/O PRIMITIVES
FOR REHOST TO IBM

INCLUDE FILES:

ERRCDM
CHKCDM
SRVRET
ERRPRO

ROUTINES CALLED:

FILXFR
TRMNAT
ERRPRO
INITEX

DOCGROUP PS41330 Module Documentation

NAME: CDM01
PURPOSE: THIS ROUTINE GENERATES UNIQUE MODULE NAMES
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDM01
SOURCE FILE TYPE: PCO
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: SHARE

DESCRIPTION:

- CDM01 IS A QUEUE SERVER RESIDENT ON ONLY ONE PLACE
IN THE TEST BED. WHEN CALLED
REPLY WITH THE NEXT MODULE NAME TO USE FOR
GENERATED CODE

MOD FOR 2.3 (2.2.5)
ADD WORKAROUND FOR NTM SHUTDOWN PROBLEM:
SAVE FILE NAMES WHENEVER THERE IS NO
OUTSTANDING REQUEST. USE CHKMSG EVERY
TIME A REPLY IS SENT, IF NO MESSAGES ARE
ARE READY, THEN SAVE THE NAMES IN THE FILE.
MOD FOR 2.3
CALLABLE SUBROUTINE. DO A DATA BASE ACCESS TO FIND
THE LAST USED MODULE NAME, STORE INTERNALLY AND THEN
INCREMENT ON EACH CALL. STORE LAST NAME USED ON DATA BASE
WHEN REQUESTED BY SPECIAL CONTROL INPUT FLAG.
-

ARGUMENTS:

FETCH-SAVE-FLAG	DSPLY[X]
DBMS-NAME	DSPLY[X(30)]
AP-NAME	DSPLY[X(10)]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
EOD
ALFABET
ERRPRO

ROUTINES CALLED:

ERRPRO
SQLSCA
SQLBS1
SQLSCH
SQLSCC
SQLTOC
SQLOSQ
SQLEXE
SQLADR
SQLAD1
SQLFCH
SQLCLS
SQLTFL
SQLOPN
SQLAB1
SQLWNR

DOCGROUP PS41330 Module Documentation

NAME: CDRF1
PURPOSE: FILE RECEIVE FUNCTION
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDRF1
SOURCE FILE TYPE: COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY: CDMR

DESCRIPTION:

- THE FILE RECEIVE FUNCTION ACCEPTS FILES FROM FILE SEND FUNCTION. IT RECEIVES FILE CHARACTERISTICS AND OPERATING INSTRUCTIONS FROM THE FILE SEND PROCESS. FILE RECEIVE PASSES COMPLETION INFORMATION TO THE FILE SEND FUNCTION.

mod rel 2.0 - must call "GENFIL" to determine name of results file, use of 9(5) comp data-length
USE STANDARD ERROR HANDLING AND ALLOW FOR RESULTS FILE NAME TO BE BLANK.
MODIFICATION 9/86: MADE FOR SUPPORT OF FILE I/O PRIMITIVES
FILENAME HAS BEEN INCREASED FROM 30 TO 80 CHARACTERS.
CALL TO FORTRAN SUBROUTINE "RCVDAT" HAS BEEN REPLACED BY "OUTFIL"
CALL TO SUBROUTINE "GENFIL" HAS BEEN REPLACED BY "NAMFIL"
CALL TO FORTRAN SUBROUTINE "RCVOPN" HAS BEEN REPLACED BY "OPNFIL"
CALL TO FORTRAN SUBROUTINE "RCVCLS" HAS BEEN REPLACED BY "CLSFIL"

INCLUDE FILES:

ERRCDM
ERRFS
CHKCDM
SRVRET
FSMSG
STDRESP
ERRPRO

ROUTINES CALLED:

INITAL
RCV
SIGERR
NSEND
OUTFIL
TRMNAT
ERRPRO
NAMFIL
OPNFIL
CLSFIL

DOCGROUP PS41330 Module Documentation

NAME: CDRSMN
PURPOSE: RESET MODULE NAME ASSIGNMENT TABLE TO BEGINNING
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDRSMN
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: SHARE

DESCRIPTION:

-
THIS ROUTINE WILL SET THE PROPER FLAG TO CALL
CDM01 TO RESET AND CLEAR THE MODULE NAME TABLE
THIS ROUTINE SHOULD
BE CALLED BEFORE ANY MODULE NAMES ARE TO BE HANDED OUT
(AN EMPTY TABLE WILL FORCE A DATA BASE RETRIEVAL OF THE
LAST MODULE NAME USED) AND IT SHOULD BE CALLED IN THE
EVENT OF A ROLLBACK.

ARGUMENTS:

RET-STATUS DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRPRO

ROUTINES CALLED:

CDM01
ERRPRO

DOCGROUP PS41330 Module Documentation

NAME: CDSF1
PURPOSE: FILE SEND FUNCTION
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDSF1
SOURCE FILE TYPE: COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY: CDMR

DESCRIPTION:

- THE FILE SEND FUNCTION TRANSFERS FILES FROM HOST TO HOST. THE FILE SEND RECEIVES FILE CHARACTERISTICS AND OPERATING INSTRUCTIONS FROM A REQUESTING PROCESS. IT IN TURN PASSES CONTROL INFORMATION TO A FILE RECEIVE FUNCTION.

MOD REL 2.0:
OUTPUT FILE NAME DOES NOT COME FROM THE DRS
USE THE "CDFUNC" ROUTINE TO DETERMINE
NAME OF FILE RECEIVE, USE 9(5) COMP DATA
LENGTH

MOD IBM RE-HOST : CUT DOWN BUFFER SIZE FROM
FROM 1926 TO 1900 TO BE < 1908 WHICH IS
THE NTM BOUNDARY FOR CONTINUED MESSAGES.

MOD 9/86: FILENAME HAS BEEN INCREASED FROM 30
TO 80 CHARACTERS TO SUPPORT THE ADDITION OF
FILE I/O PRIMITIVES
FCB VARIABLE HAS BEEN ADDED TO CONTAIN THE
ADDRESS OF THE FILENAME
DISPOSITION VARIABLE HAS BEEN REDUCED FROM 6
TO 1 CHARACTER
CALL TO FILE PRIMITIVE "INPFIL" HAS BEEN ADDED
IN PLACE OF CALL TO "SNDDAT"
CALL TO FILE PRIMITIVE "OPNFIL" HAS BEEN ADDED
IN PLACE OF CALL TO "SNDOPN"
CALL TO FILE PRIMITIVE "CLSFIL" HAS BEEN ADDED
IN PLACE OF CALL TO "SNDCLS"
-

INCLUDE FILES:

CHKCDM
ERRCDM
ERRFS
SRVRET
FSMSG
STDRESP
ERRPRO

ROUTINES CALLED:

INITAL
RCV
CDFUNC
ISEND
NSEND
SIGERR
INPFIL
TRMNAT
ERRPRO
OPNFIL
CLSFIL

DOCGROUP PS41330 Module Documentation

NAME: CDSLMN
PURPOSE: SAVE LAST MODULE NAME ASSIGNED
LANGUAGE: VAX-11 COBOL
SOURCE FILE: CDSLMN
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: SHARE

DESCRIPTION:

THIS ROUTINE WILL SET THE PROPER FLAG TO CALL
CDM01 TO DO A DATA BASE SAVE OF THE LAST MODULE
NAME USED FOR EACH HOST. THIS ROUTINE SHOULD
BE CALLED AFTER ALL MODULE NAMES NEEDED ARE OBTAINED
AND JUST BEFORE THE COMMIT POINT.

ARGUMENTS:

RET-STATUS DSPLY[X(5)]

INCLUDE FILES:

ERRCDM
ERRPRO

ROUTINES CALLED:

CDM01
ERRPRO

DOCGROUP PS41330 Module Documentation

NAME: DELFIL
PURPOSE: ACT AS A GENERALIZED INTERFACE TO THE FILE DELETE
PROGRAM.
LANGUAGE: VAX-11 COBOL
SOURCE FILE: DELFIL
SOURCE FILE TYPE: COB
HOST: VAX
SUBSYSTEM: CDM
SUBDIRECTORY: CDMR

DESCRIPTION:

THE PURPOSE OF THIS ROUTINE IS TO ACT AS A
GENERALIZED INTERFACE TO THE FILE DELETE
PROGRAM ON THE APPROPRIATE HOST.

```
MOD FOR RELEASE 2.0 : USE CDFUNC ROUTINE.
                      DON'T WAIT FOR A REPLY FRO Q-SERVER.
.  if request is on host, use fdelet
directly
.     use standard error handling
.  IF HOST INPUT IS BLANK, USE CURRENT HOST
AND RETURN IT TO THE CALLER.
MODIFICATION 10/86:
CALL TO FDELET HAS BEEN REPLACED BY CALLS TO
FILE I/O PRIMITIVES "OPNFIL" AND "CLSFIL".
FILE NAME HAS BEEN INCREASED FROM 30 TO 80
CHARACTERS

ARGUMENTS:
----------
FILE-HOST                       DSPLY[XXX]
OLD-FILE-NAME                   DSPLY[X(80)]


INCLUDE FILES:
--------------
CHKCDM
ERRCDM
ERRFS
STDRESP
SRVRET
ERRPRO

ROUTINES CALLED:
----------------
WHTHST
OPNFIL
CLSFIL
CDFUNC
NSEND
ERRPRO



  DOCGROUP PS41330 Module Documentation

NAME: FILXFR
PURPOSE: GENERALIZED INTERFACE TO A FILE TRANSFER
LANGUAGE: VAX-11 COBOL
SOURCE FILE: FILXFR
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: CDMR

DESCRIPTION:
------------
- THIS ROUTINE WILL ACCEPT USER INPUTS AND
DETERMINE THE CORRECT FILE SEND TO INTERFACE
WITH.  IT IS ASSUMED THE FILE TO BE
TRANSFERRED IS ON HOST.
```

FIRST LOOK UP THE NAME OF THE FILE SENDER ON THIS HOST,
THEN SET UP THE INPUT MESSAGE TO THE FILE SENDER.
IF THE USER DID NOT WANT TO WAIT, RETURN. IF HE DID
WAIT FOR THE REPLY AND RETURN THE RET-STATUS.

ARGUMENTS:

SOURCE-HOST	DSPLY[XXX]
SOURCE-FILE	DSPLY[X(80)]
FILE-REC-SIZE	DSPLY[S9(5)]
DEST-HOST	DSPLY[XXX]
WAIT-FLAG	DSPLY[9]
BINARY-NATIVE-FLAG	DSPLY[X]
DESTINATION-FILE	DSPLY[X(80)]
RECS-SENT	DSPLY[9(6)]
RET-STATUS	DSPLY[X(5)]

INCLUDE FILES:

SRVRET
ERRCDM
CHKCDM
FSMSG
STDRESP
ERRPRO

ROUTINES CALLED:

CDFUNC
ISEND
RCV
ERRPRO

DOCGROUP PS41330 Module Documentation

NAME: GENFIL
PURPOSE: GENERALIZED INTERFACE TO THE CDM FILE NAME ASSIGNER
LANGUAGE: VAX-11 COBOL
SOURCE FILE: GENFIL
SOURCE FILE TYPE: COB
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: SHARE

DESCRIPTION:

THE PURPOSE OF THIS ROUTINE IS TO ACT AS A
GENERALIZED INTERFACE TO THE FILE NAME
QUEUE SERVER.
mod for release 2.0 to return a ret-status
ALSO WILL USE CDFUNC TO DETERMINE AP.

```
WILL ASK FOR AND RECEIVE A BLOCK OF 20 NAMES
AND HAND THEM OUT TO A CALLER 1 AT A TIME.
IF INUT-HOST NAME IS BLANK, THEN USE THE
CURRENT HOST AND PASS IT BACK TO THE CALLER.

MODIFIED FOR RELEASE 2.2 (AUGUST 1986)
Ignore unsolicited messages
MOD for release 2.3 (Mar 87)
call CDF01 directly to obtain 1 file name only

ARGUMENTS:
----------
FILE-HOST                       DSPLY[XXX]
NEW-FILE-NAME                   DSPLY[X(80)]
RET-STATUS                      DSPLY[X(5)]

INCLUDE FILES:
--------------
ERRCDM
ERRPRO

ROUTINES CALLED:
----------------
WHTHST
CDF01
ERRPRO


  DOCGROUP PS41330 Module Documentation

NAME: CDINGSP
PURPOSE: PERFORM INGRES SPECIFIC SQL COMMANDS
LANGUAGE: C
SOURCE FILE: CDINGSP
SOURCE FILE TYPE: PC
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

DESCRIPTION:
------------
CALLED BY:
      CDPRE.PCO, CDVERSM.PCO, CDVERLW.PCO, CDP14.PCO

INPUT:
      CHAR *COMMAND_TYPE
OUTPUT:
      INT *STATUS
DESCRIPTION:
      THIS ROUTINE WILL PERFORM INGRES SQL COMMANDS THAT ARE
NOT
      THE SAME FOR ALL SQL DBMS'S.  AN INPUT PARAMETER IS
PASSED
      IN TO TELL WHICH COMMAND TO PERFORM, WITH THESE BEING AS
      FOLLOWS:  'C' - COMMIT WORK (END TRANSACTION)
```

'R' - ROLLBACK WORK (ABORT)
'D' - LOGOFF THE DATABASE (DISCONNECT)
'B' - BEGIN TRANSACTION

ARGUMENTS:

COMMAND_TYPE	CHAR *
STATUS	INT *

INCLUDE FILES:

ERRCDM

ROUTINES CALLED:

STRFILL
STRNCPY
SPRINTF
ERRPRO
STRCPY
SQLSCA
SQLBS2
SQLSCH
SQLSCC
SQLFCC
SQLOPN
SQLOSQ
SQLEXE
SQLCLS

DOCGROUP PS41330 Module Documentation

NAME: CDORCSP
PURPOSE: PERFORM ORACLE SPECIFIC SQL COMMANDS
LANGUAGE: C
SOURCE FILE: CDORCSP
SOURCE FILE TYPE: PC
HOST:
SUBSYSTEM: CDM
SUBDIRECTORY: NDML

```
DESCRIPTION:
------------
CALLED BY:
      CDDBMSS.C

INPUT:
      CHAR *COMMAND_TYPE
OUTPUT:
      INT *STATUS
DESCRIPTION:
      THIS ROUTINE WILL PERFORM ORACLE SQL COMMANDS THAT ARE
NOT
      THE SAME FOR ALL SQL DBMS'S.  AN INPUT PARAMETER IS
PASSED
      IN TO TELL WHICH COMMAND TO PERFORM, WITH THESE BEING AS
      FOLLOWS:  'C' - COMMIT WORK WITHOUT LOGGING OFF THE
DATABASE
                'R' - ROLLBACK WORK WITHOUT LOGGING OFF
                'D' - LOGOFF THE DATABASE (WITH A COMMIT WORK
RELEASE)
                      (NOTE: EVERYTHING SHOULD HAVE BEEN
ROLLED BACK
                             OR COMMITED BEFORE THIS )
                'B' - NOT USED IN ORACLE


ARGUMENTS:
----------
COMMAND_TYPE                          CHAR *
STATUS                                INT *

INCLUDE FILES:
--------------
ERRCDM

ROUTINES CALLED:
----------------
STRFILL
SQLSCA
SQLBS2
SQLSCH
SQLROL
SQLCOM
STRNCPY
SPRINTF
ERRPRO
STRCPY
```

3.10.5 Include File Descriptions

The following list contains a purpose and description of each include file in the documentation group as specified in the source code. The language it is written in is also given.

DOCGROUP PS41330 Include File Description

FILE NAME: ALFABET
PURPOSE: LETTERS CONTAINED IN THE ENGLISH ALPHABET
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

THIS IS THE ENGLISH ALPHABET, THE LETTERS ARE USED FOR ASSIGNING THE NEXT UNIQUE NAME WHEN THE NUMBERS RUN OUT.

DOCGROUP PS41330 Include File Description

FILE NAME: CHKCDM
PURPOSE: IISS CDMP CHECK STATUS CODES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS ALL STATUS CODES FOR THE CDMP MODULES

DOCGROUP PS41330 Include File Description

FILE NAME: EOD
PURPOSE: SQL END OF DATA DEFINITION
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41330 Include File Description

FILE NAME: ERRCDM
PURPOSE: IISS ERROR STATUS CODES FOR CDMP MODULES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS ALL ERROR CODES USED BY CDMP MODULES FOR ERROR HANDLING

DOCGROUP PS41330 Include File Description

FILE NAME: ERRFS
PURPOSE: ERRFS.INC - FILE I/O PRIMITIVES (FILE SERVICES)
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

IISS ERROR CODES

THIS FILE DEFINES THE FS STATUS
CODES IN COBOL FORMAT

DOCGROUP PS41330 Include File Description

FILE NAME: ERRPRO
PURPOSE: PROCESS ERROR INCLUDE FILE
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

DOCGROUP PS41330 Include File Description

FILE NAME: FSMSG
PURPOSE: MESSAGE FOR THE FILE SEND UTILITY
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

MESSAGE FORMAT FOR THE FILE SEND INPUT

DOCGROUP PS41330 Include File Description

FILE NAME: SRVRET
PURPOSE: IISS ERROR STATUS CODES FOR CDMP MODULES
LANGUAGE: VAX-11 COBOL

DESCRIPTION:

CONTAINS ALL ERROR CODES USED BY CDMP *
MODULES FOR ERROR HANDLING *

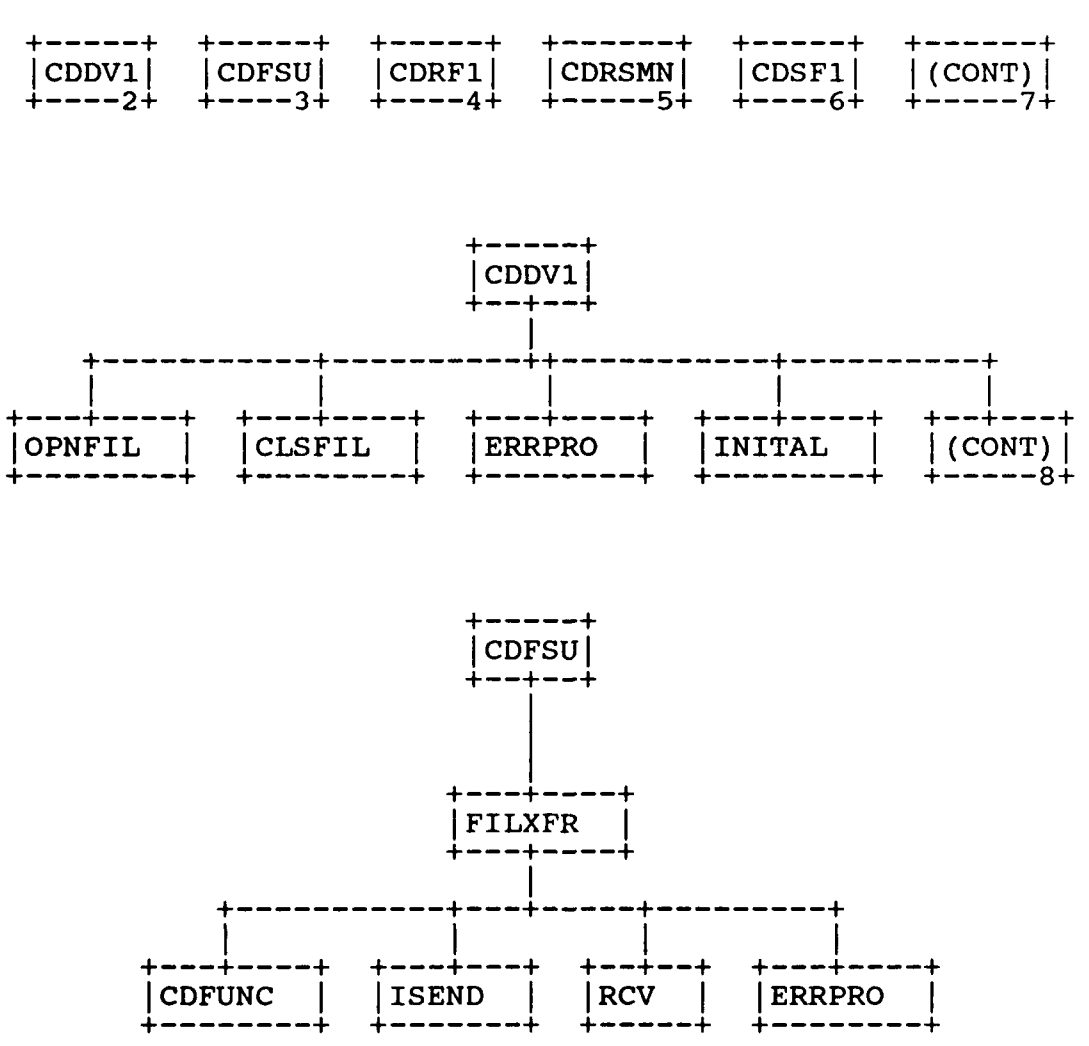
DOCGROUP PS41330 Include File Description

FILE NAME: STDRESP
PURPOSE: WS DEFINITION FOR STANDARD STATUS VARIABLE
LANGUAGE: VAX-11 COBOL

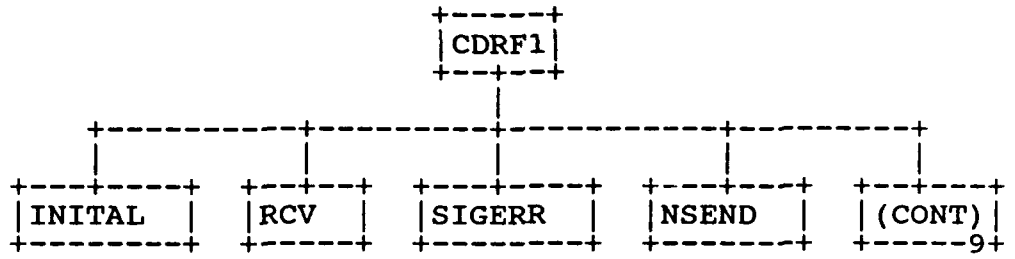
DESCRIPTION:

THE STANDARD 'PROCESS COMPLETE' MESSAGE

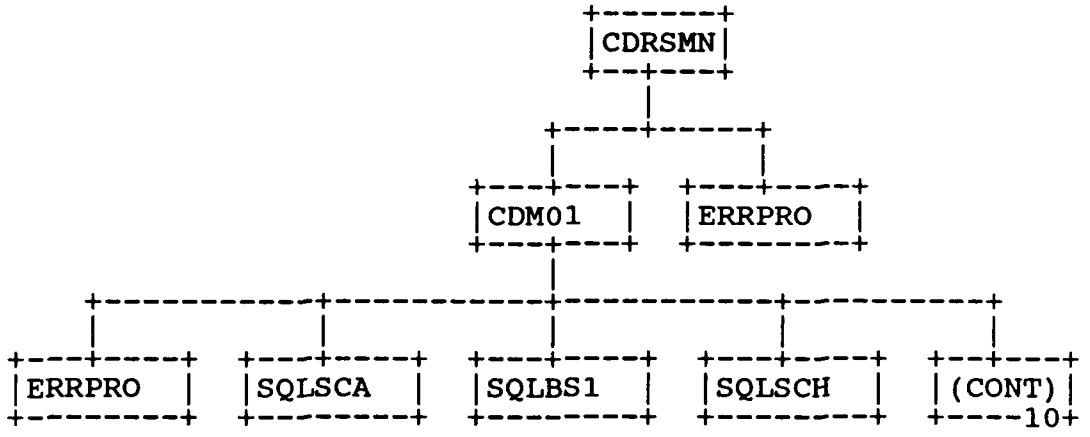
3.10.6 Hierarchy Chart



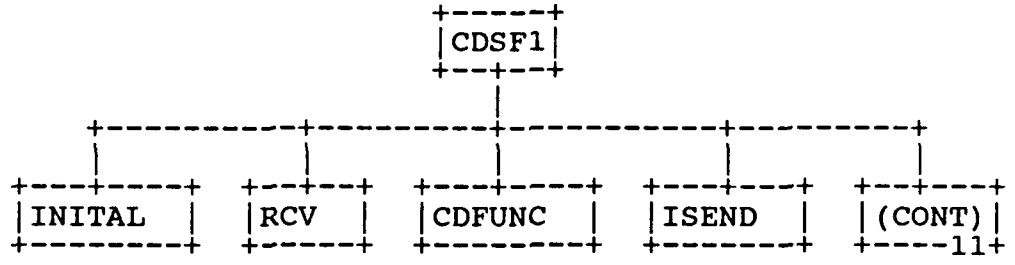
4


CDRF1
INITAL
RCV
SIGERR
NSEND
(CONT)
9

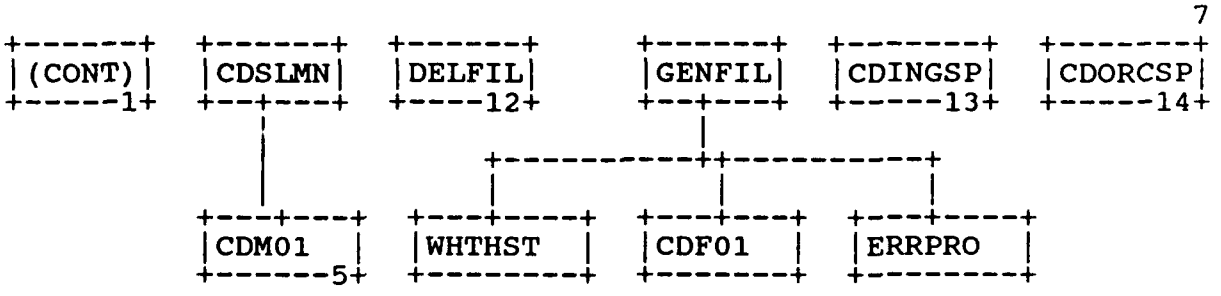
5


CDRSMN
CDM01
ERRPRO
ERRPRO
SQLSCA
SQLBS1
SQLSCH
(CONT)
10

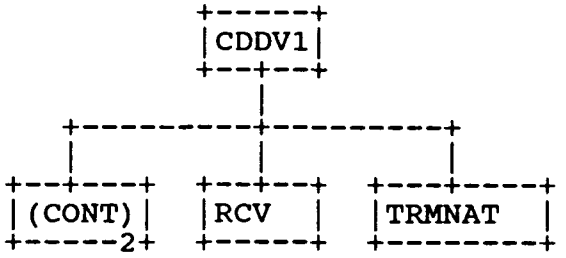
6


CDSF1
INITAL
RCV
CDFUNC
ISEND
(CONT)
11

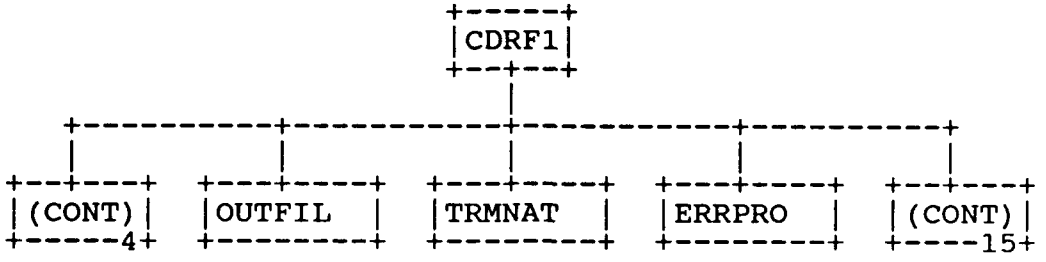
7


(CONT)
1
CDSLMN
DELFIL
12
GENFIL
CDINGSP
13
CDORCSP
14
CDM01
5
WHTHST
CDF01
ERRPRO

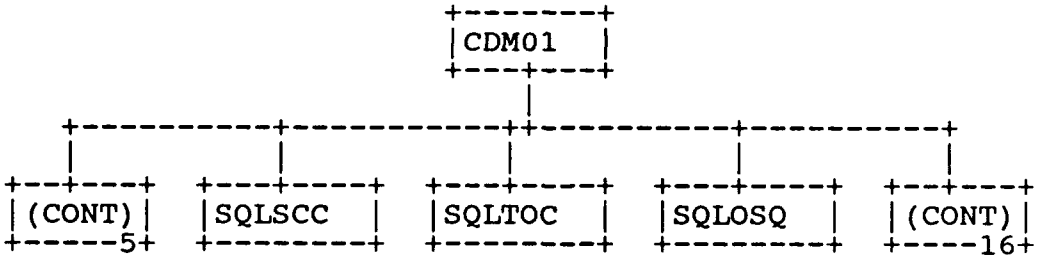
8


CDDV1
(CONT)
2
RCV
TRMNAT

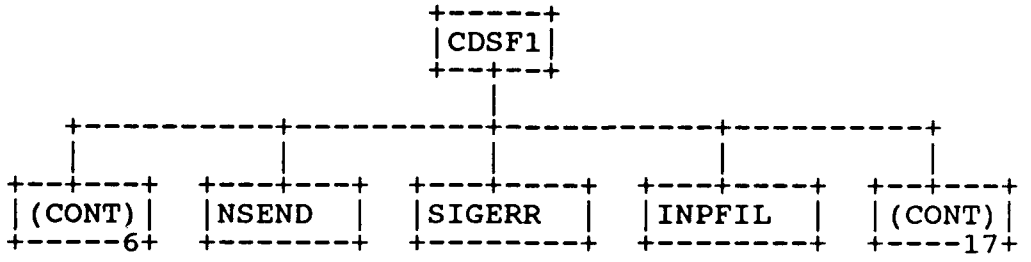
9


CDRF1
(CONT)
4
OUTFIL
TRMNAT
ERRPRO
(CONT)
15

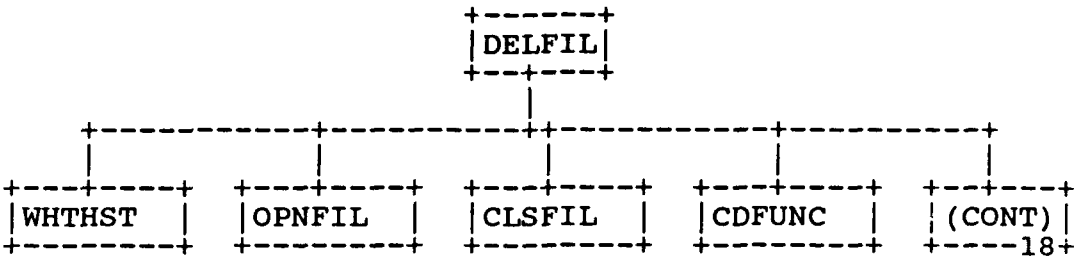
10


CDM01
(CONT)
5
SQLSCC
SQLTOC
SQLOSQ
(CONT)
16

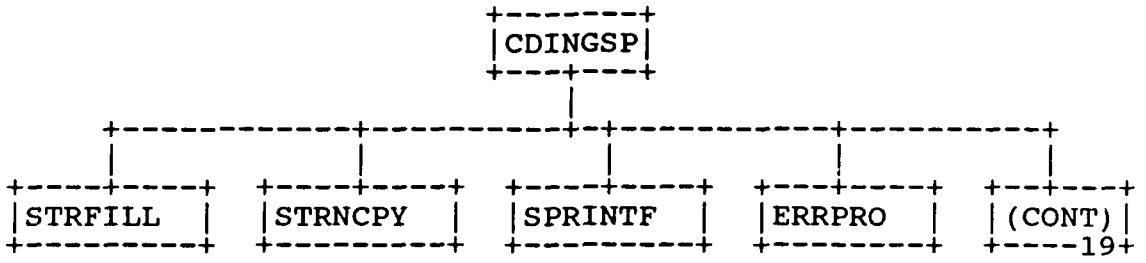
11


CDSF1
(CONT)
6
NSEND
SIGERR
INPFIL
(CONT)
17

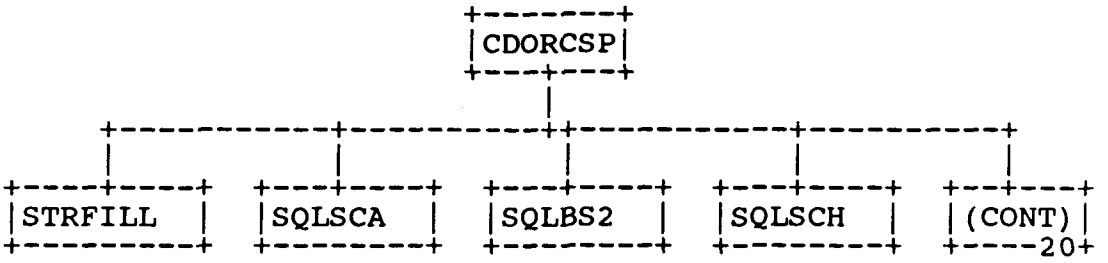
12


DELFIL
WHTHST
OPNFIL
CLSFIL
CDFUNC
(CONT)
18

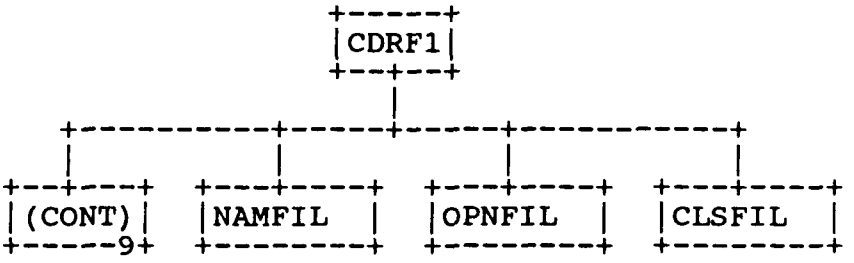
13


CDINGSP
STRFILL
STRNCPY
SPRINTF
ERRPRO
(CONT)
19

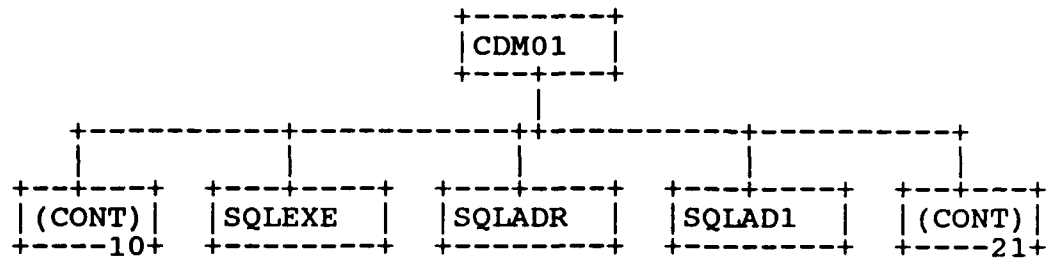
14


CDORCSP
STRFILL
SQLSCA
SQLBS2
SQLSCH
(CONT)
20

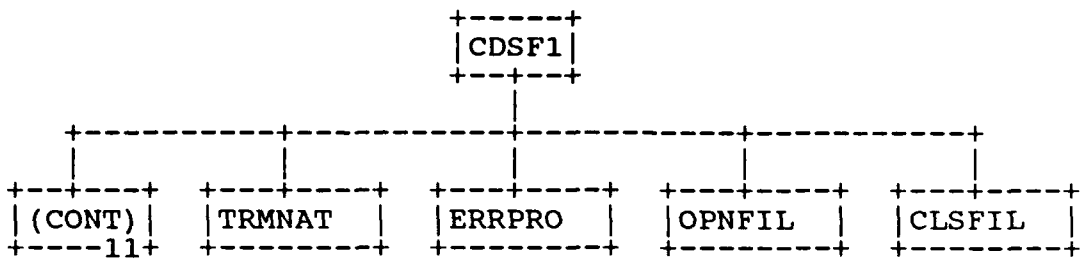
15


CDRF1
(CONT)
9
NAMFIL
OPNFIL
CLSFIL

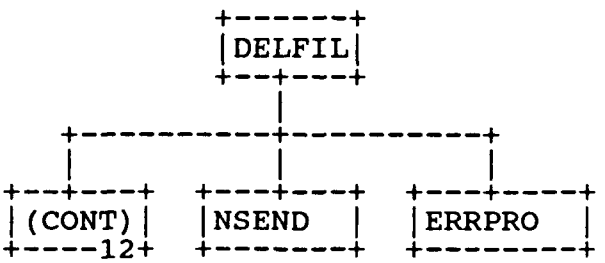
16


CDM01
(CONT)
10
SQLEXE
SQLADR
SQLAD1
(CONT)
21

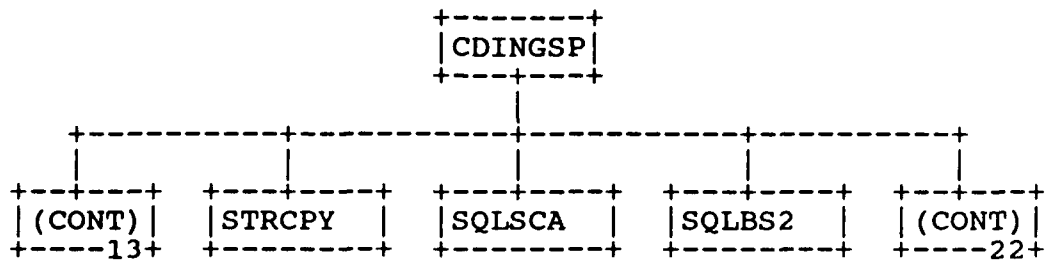
17


CDSF1
(CONT)
11
TRMNAT
ERRPRO
OPNFIL
CLSFIL

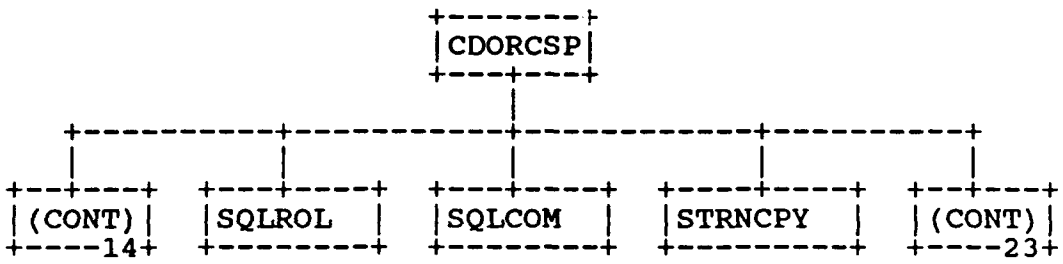
18


DELFIL
(CONT)
12
NSEND
ERRPRO

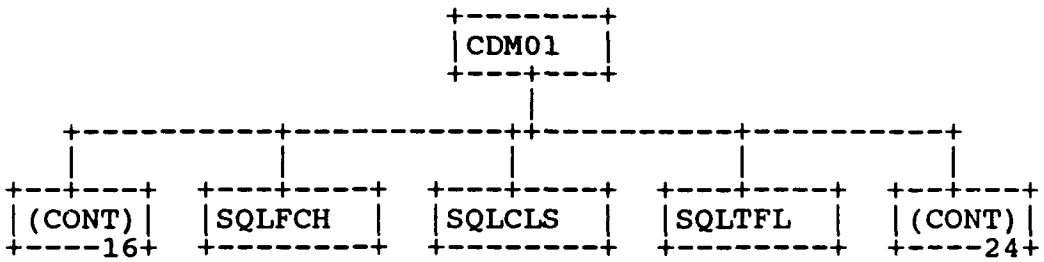
19


CDINGSP
(CONT)
13
STRCPY
SQLSCA
SQLBS2
(CONT)
22

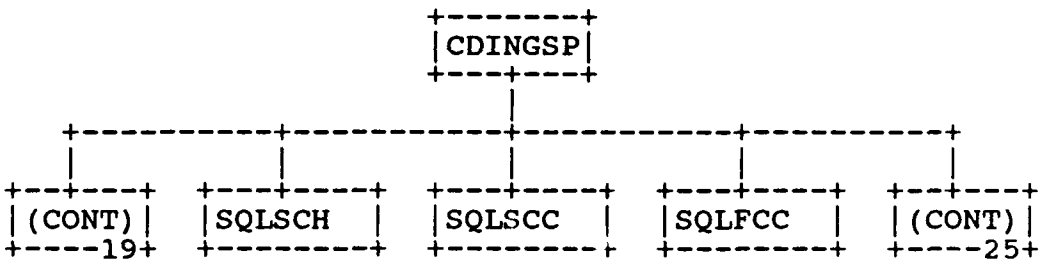
20


CDORCSP
(CONT)
14
SQLROL
SQLCOM
STRNCPY
(CONT)
23

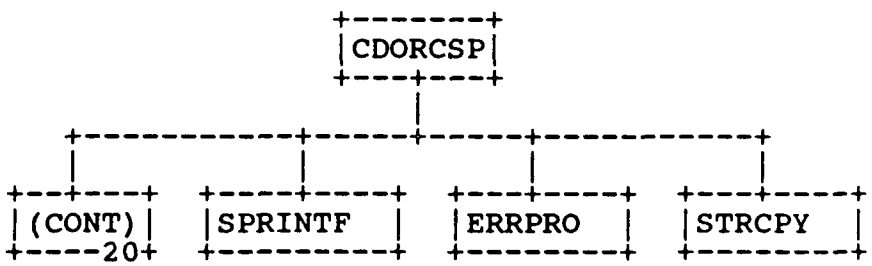
21


CDM01
(CONT)
16
SQLFCH
SQLCLS
SQLTFL
(CONT)
24

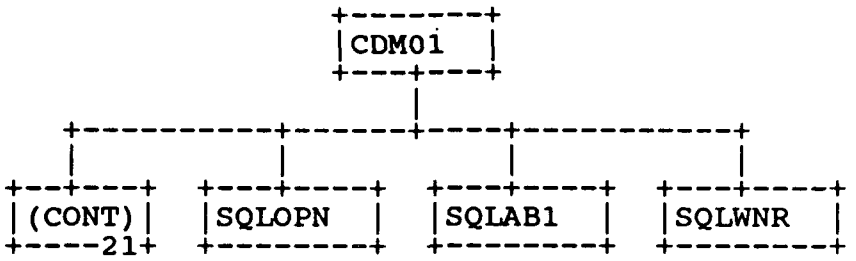
22


CDINGSP
(CONT)
19
SQLSCH
SQLSCC
SQLFCC
(CONT)
25

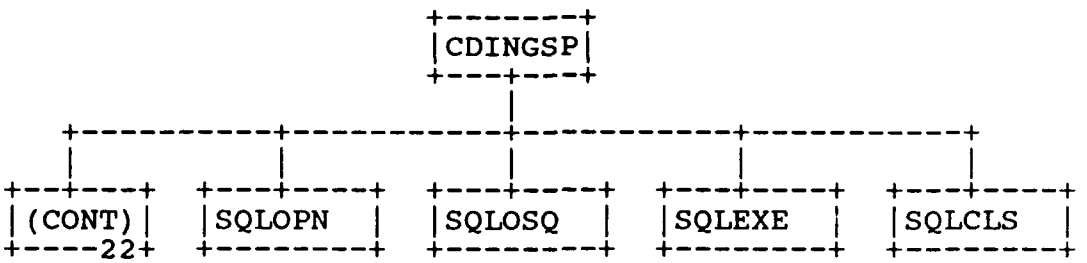
23


CDORCSP
(CONT)
20
SPRINTF
ERRPRO
STRCPY

24



25




```
CDDV1.........2     STRNCPY
CDF01               TRMNAT
CDFSU.........3     WHTHST
CDFUNC
CDINGSP......13
CDM01  .......5
CDORCSP......14
CDRF1.........4
CDRSMN........5
CDSF1.........6
CDSLMN........7
CLSFIL
DELFIL.......12
ERRPRO
FILXFR  ......3
GENFIL........7
INITAL
INPFIL
ISEND
NAMFIL
NSEND
OPNFIL
OUTFIL
RCV
SIGERR
SPRINTF
SQLAB1
SQLAD1
SQLADR
SQLBS1
```

SQLBS2
SQLCLS
SQLCOM
SQLEXE
SQLFCC
SQLFCH
SQLOPN
SQLOSQ
SQLROL
SQLSCA
SQLSCC
SQLSCH
SQLTFL
SQLTOC
SQLWNR
STRCPY
STRFILL

3.11 Program Listings Comments

This information is contained in the Module Descriptions in section 3.10.

SECTION 4

QUALITY ASSURANCE PROVISIONS

4.1 Introduction and Definitions

"Testing" is a systematic process that may be preplanned and explicitly stated. Test techniques and procedures may be defined in advance, and a sequence of test steps may be specified. "Debugging" is the process of isolation and correction of the cause of an error.

"Antibugging" is defined as the philosophy of writing programs in such a way as to make bugs less likely to occur and when they do occur, to make them more noticeable to the programmer and the user. In other words, as much error checking as is practical and possible in each routine should be performed.

4.2 Computer Programming Test and Evaluation

The quality assurance provisions for test consists of the normal testing techniques that are accomplished during the construction process. They consist of design and code walk-throughs, unit testing, and integration testing. These tests are performed by the design team. Structured design, design walk-through and the incorporation of "antibugging" facilitate this testing by exposing and addressing problem areas before they become coded "bugs."

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